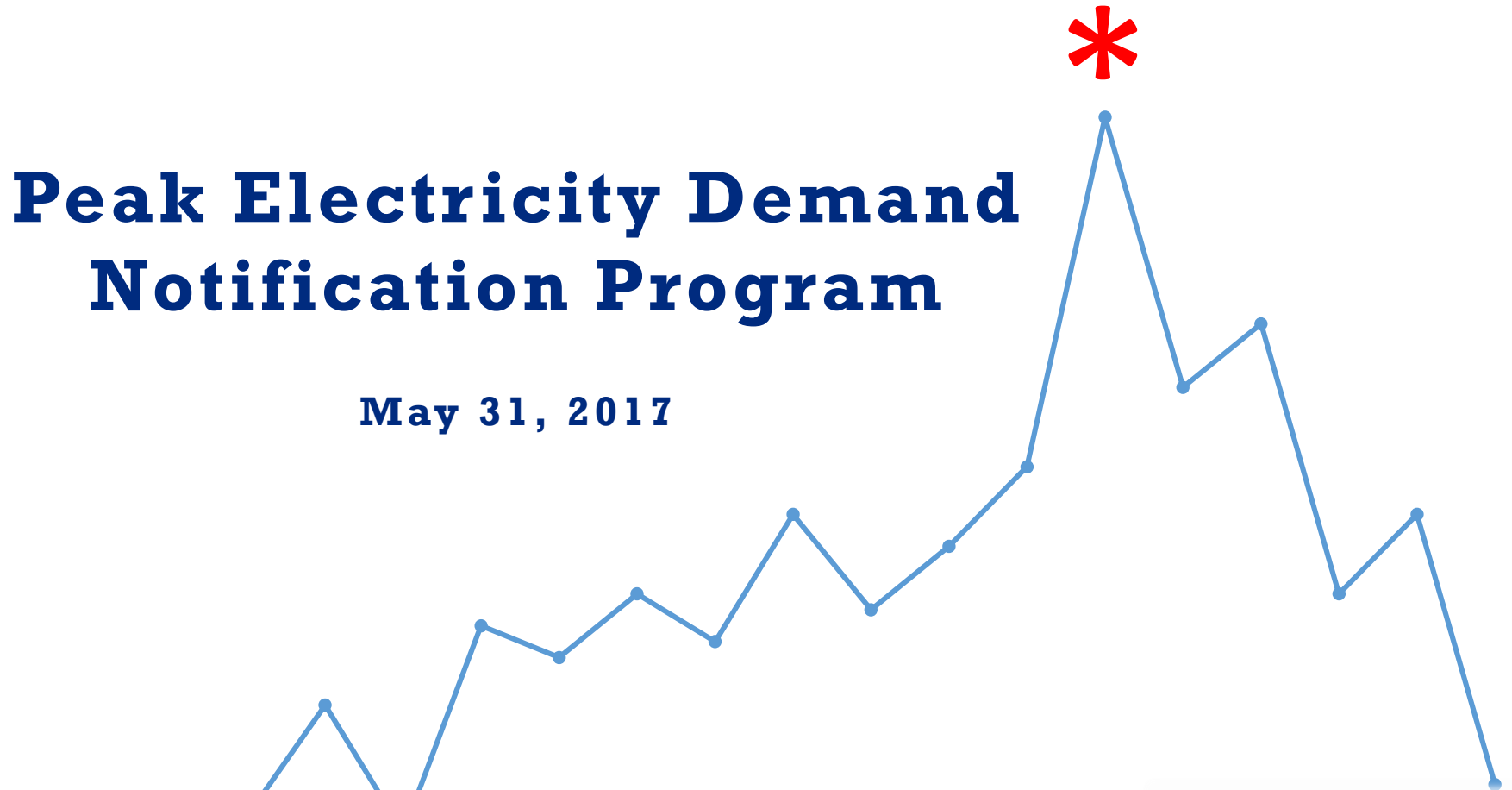


# Peak Electricity Demand Notification Program

May 31, 2017



# Two charges on each electricity bill:

1.  **Delivery - Getting Electricity to You**

2.  **Supply - The Actual Electricity**

**Capacity  
Charge**



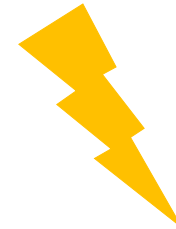


\$

\$

**Generators**

**Your  
Supplier**



$$\text{Capacity Charge} = \text{Price} * \text{Quantity}$$

2x Increase

Set by



Under your  
control

$$\text{Capacity Charge} = \$6.66 \text{ per kW} * 1000 \text{ kW ICAP Tag}$$



**\$6,660 per Month**



**~\$80,000 per Year**

## Typical Buildings:

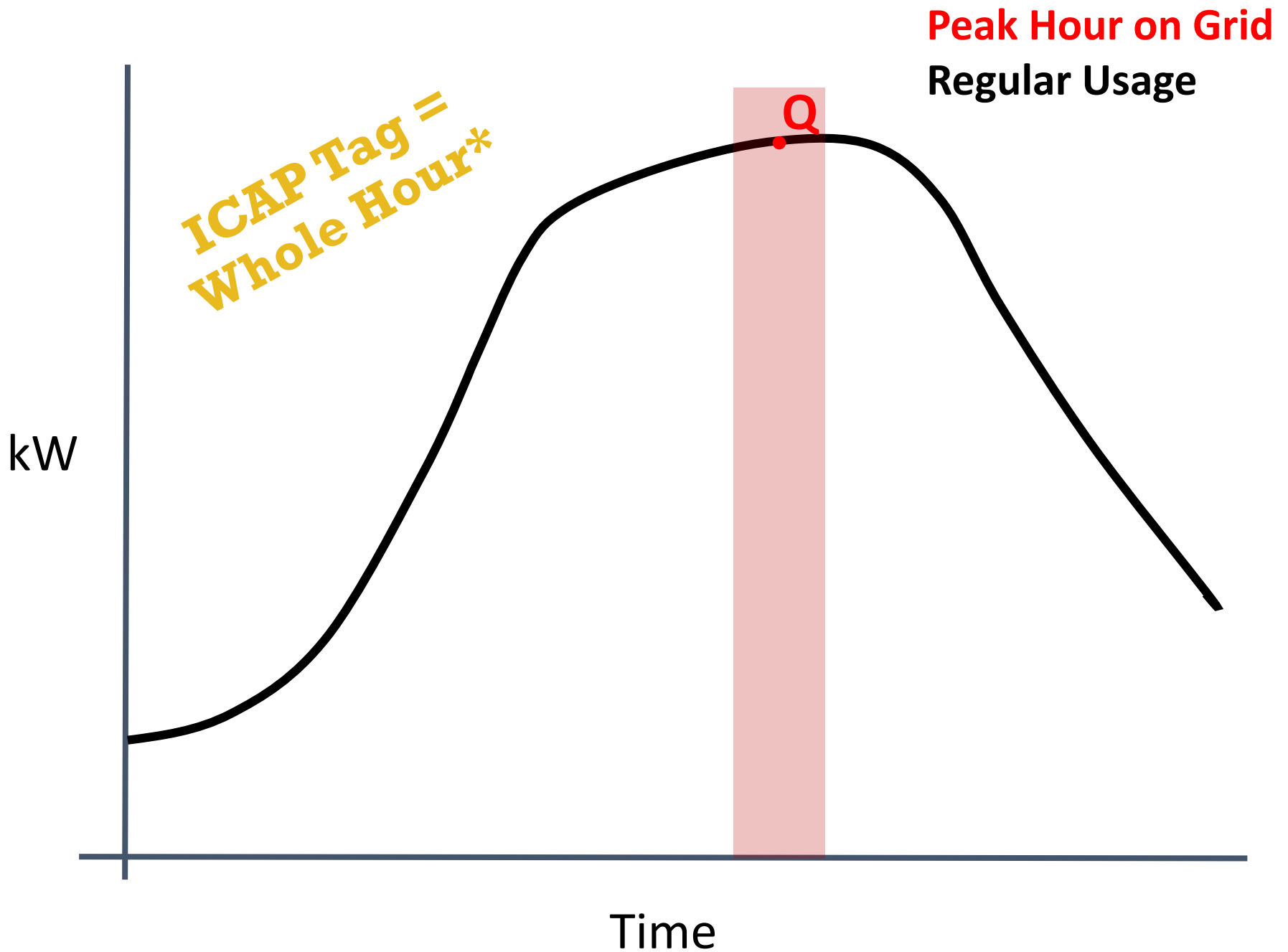
**High School, Middle School, Library, Town or  
City Hall, Police, Fire Station, Waste Water  
Treatment**



## Applicable Accounts:

**National Grid: G3**

**Eversource: B7 and G8 as well as B3, B5, B6, B7,  
B8, G3, G8**



\*Minor Adjustments Made for Reserve Margin

# **ISO-NE's Calendar**

**June 1 to May 31**

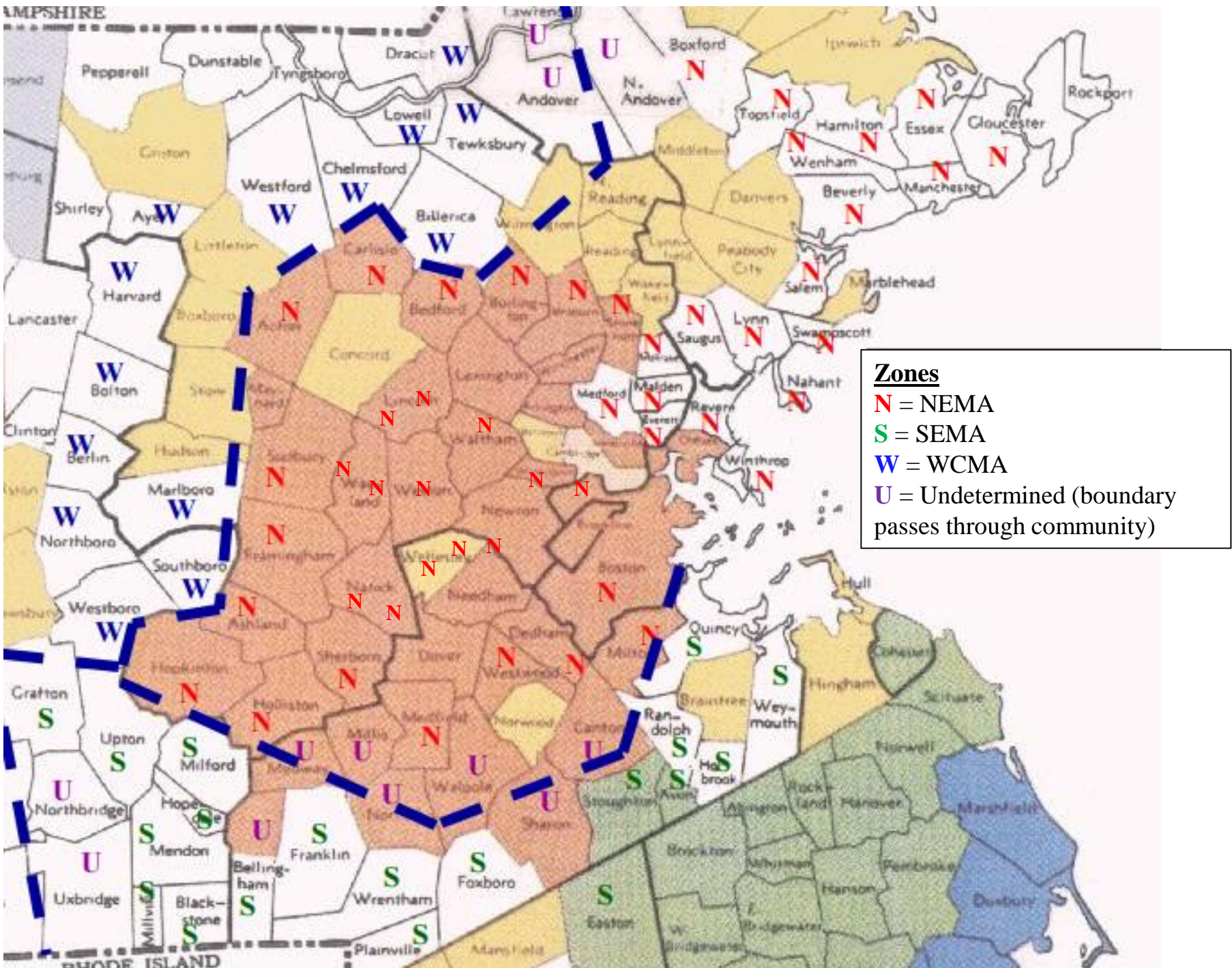
Usage **THIS** summer determines the ICAP Tag starting **NEXT** June 1

Example:

Usage during peak in summer of **2016**  
determined the ICAP Tag starting this June **2017**



## AMPSHIRE



# NEMA



\$3.43



\$6.66



\$15.00

In effect as of: June 2015

June 2016

June 2017

# SEMA & WCMA



\$3.43



\$3.15



\$7.03

Starts: June 2015

June 2016

June 2017

**Remember: Quantity is determined from the year before**

# NEMA

**\$3.43**

**In effect as of:**  
June 2015

**\$6.66**

June 2016

**\$15.00**

June 2017

**\$9.55**

**June 2018**

# SEMA & WCMA

**\$3.43**

June 2015

**\$3.15**

June 2016

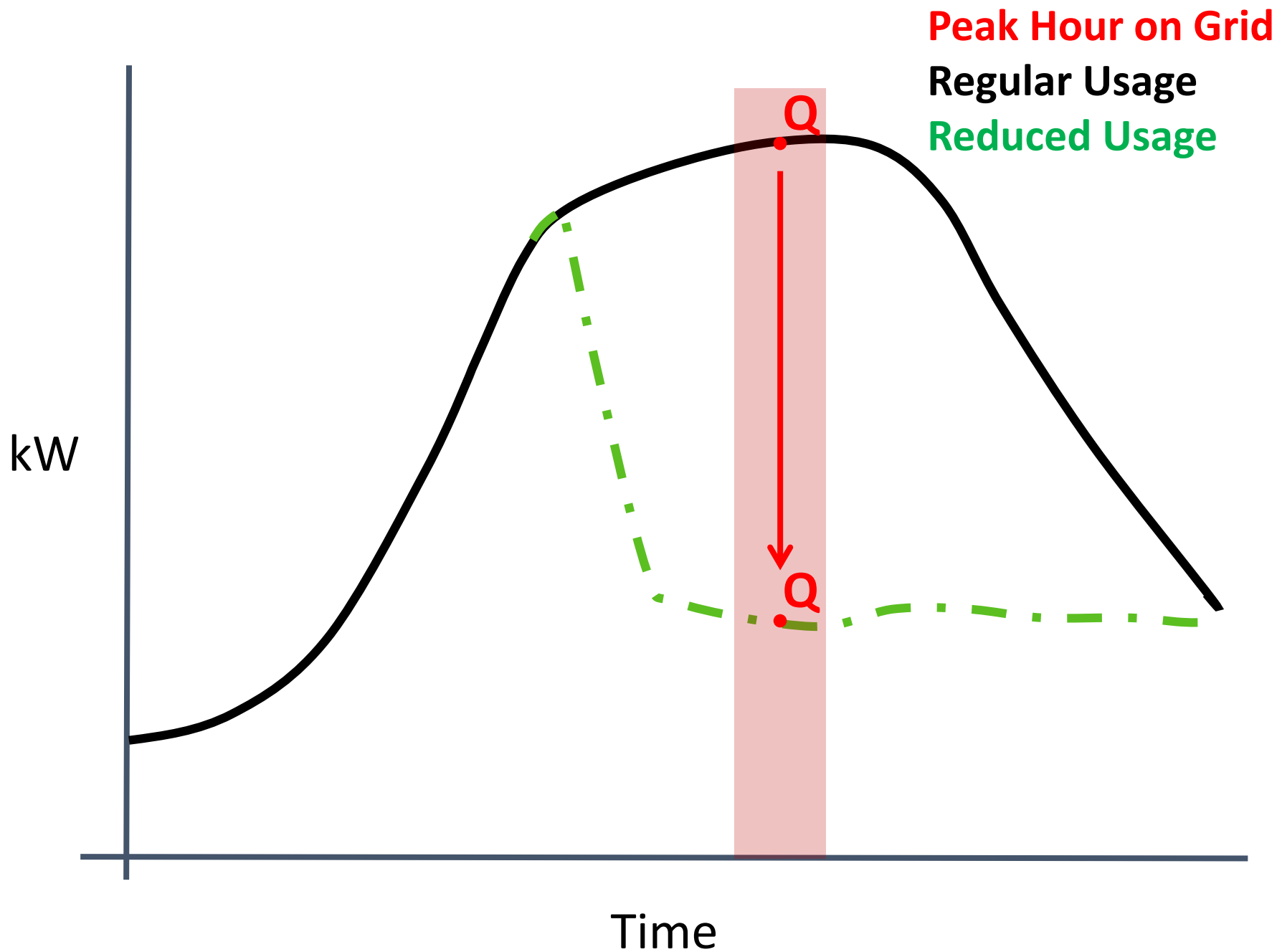
**\$7.03**

June 2017

SEMA  
**\$11.40**

WCMA  
**\$9.55**

**June 2018**





WEATHER	DAY 2 THU 10/22	DAY 3 FRI 10/23	DAY 4 SAT 10/24	DAY 5 SUN 10/25	DAY 6 MON 10/26	DAY 7 TUE 10/27
High Temperature - Boston	68	56	53	59	53	52
Dew Point - Boston	51	45	35	48	36	34

## Today's Snapshot

AS OF 09/21/2015 08:37 AM

20,075

AVAILABLE  
CAPACITY (MW)

15,700

FORECASTED PEAK  
DEMAND (MW)

1,485

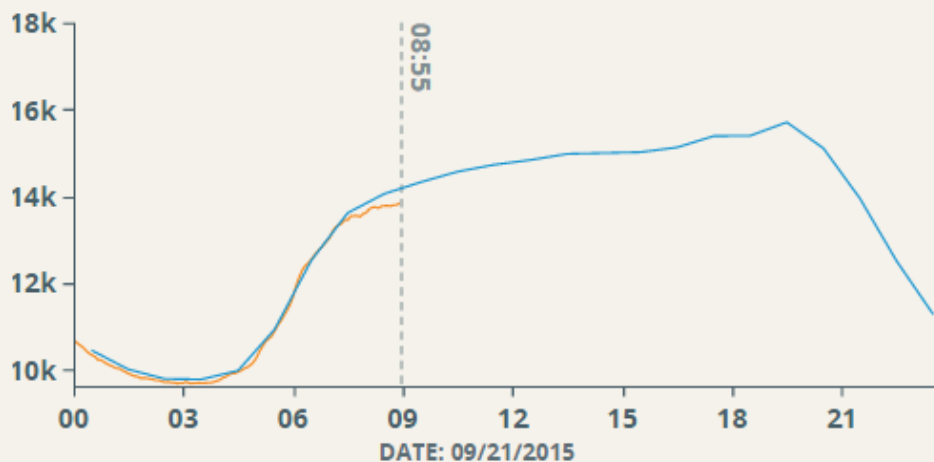
SURPLUS  
CAPACITY (MW)

15,353

YESTERDAY'S PEAK  
DEMAND (MW)

## REAL-TIME DATA

### SYSTEM DEMAND



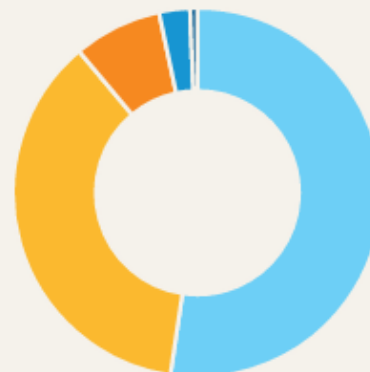
14,050

FORECASTED (MW)

13,838

ACTUAL (MW)

### FUEL MIX



52% NATURAL GAS

37% NUCLEAR

8% RENEWABLES

3% HYDRO

1% COAL

- **LIKELY:** Season Peak or Higher
- **POSSIBLE:** Within 2% of Season Peak
- **UNLIKELY:** Out of 2% range



The annual peak is **LIKELY** today.

TODAY WED 27 JUL	THU 28 JUL	FRI 29 JUL	SAT 30 JUL	SUN 31 JUL	MON 01 AUG	TUE 02 AUG
High of 85 °F	89 °F	85 °F	81 °F	78 °F	79 °F	84 °F
Peak load 23.8 GW at 3 - 4 PM	23.9 GW	22.8 GW	18.9 GW	17.5 GW	19.7 GW	20.5 GW
LIKELY	LIKELY	POSSIBLE	UNLIKELY	UNLIKELY	UNLIKELY	UNLIKELY

**\*\*May be some notes below table\*\***

[ISO-NE Real-Time Data](#) • [MAPC's load-shedding tips](#)

#### Reference

UNLIKELY	< 22.5 GW
POSSIBLE	22.5 GW — 23.5 GW
LIKELY	> 23.5 GW

#### How to use this table

This table is intended as a guide to help entities anticipate when the annual peak load for the ISO-NE system will occur and to make their own decisions about whether and when to load shed.

The "Risk of the Annual Peak" rating is generated by MAPC based on a comparison of the estimated Peak Load for the day reported by ISO-NE and load on historic annual peak days. **It is a recommendation only.**

This service, provided by MAPC, is intended for municipal and commercial facility operators that will use it to manage their building energy use. For [questions](#) or to [unsubscribe](#) please click on these links to send an email to [peakdemand@mapc.org](mailto:peakdemand@mapc.org).

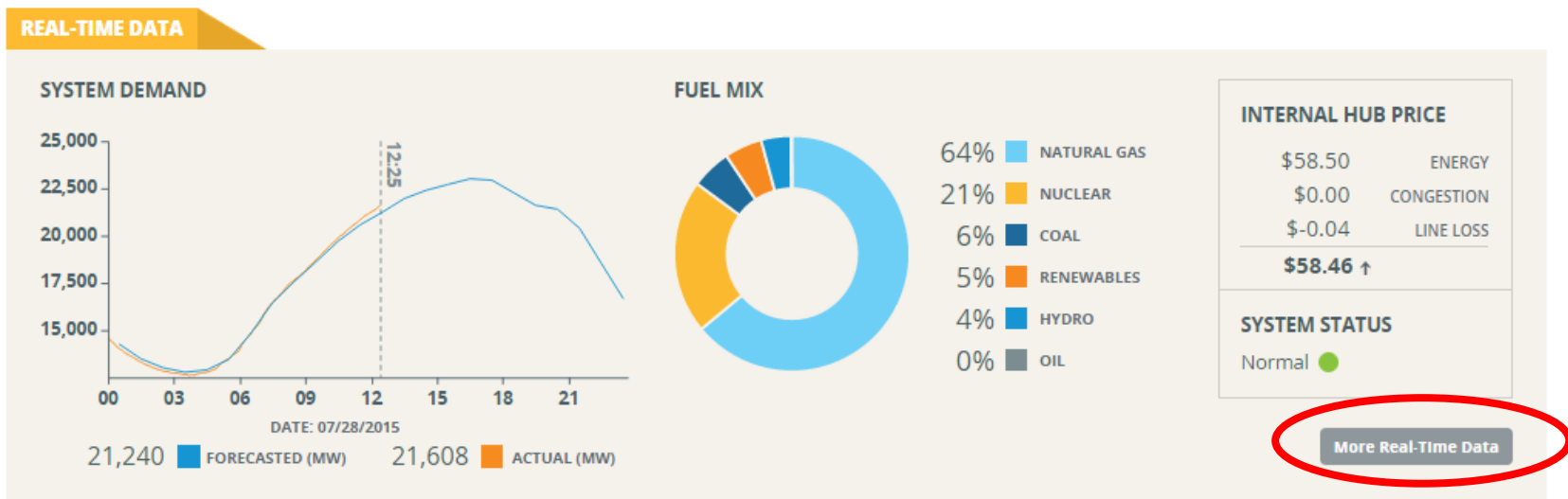
## **Our Process:**

- 1) Send out notification by 10:15 AM**
- 2) If forecast is POSSIBLE or LIKELY track the demand**
- 3) Send out a revised notification if peak is nearing either the current peak, or the LIKELY threshold.**



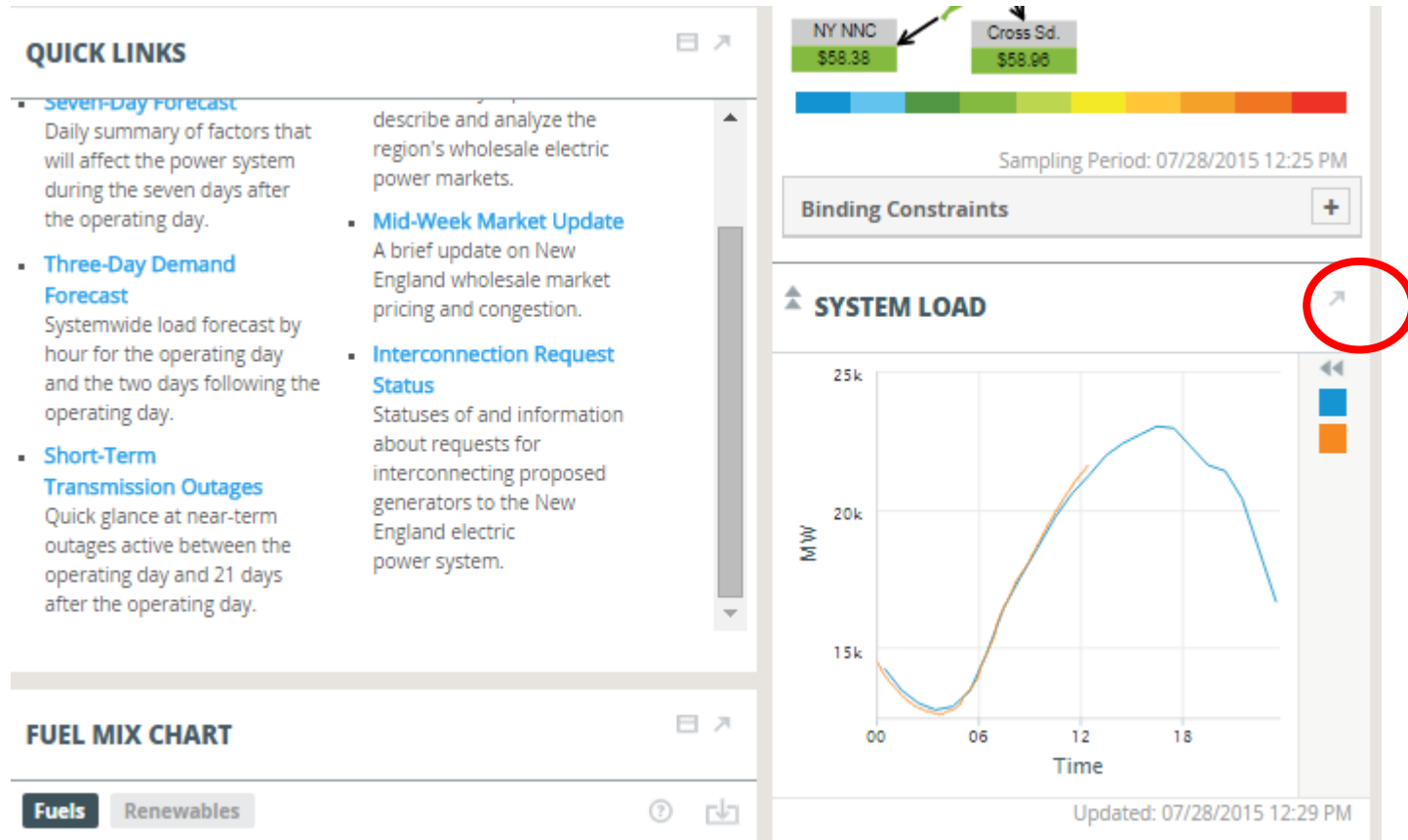
# Real-Time Tracking Tools

- Step 1 – [www.iso-ne.com](http://www.iso-ne.com)

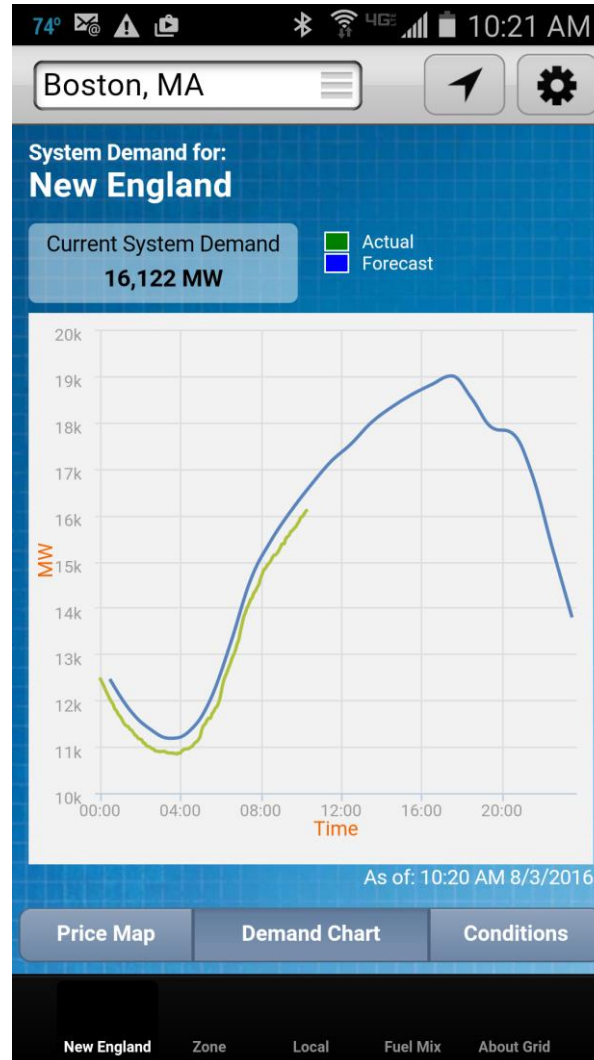


# Real-Time Tracking Tools

- Step 2 – Expand graph



# ISO to Go App



Service Utility

☐ NSTAR☒ National Grid☐ Unitil☐ WMECoFreedom Plan ☒

## Summary of Fixed Rates:

Term (not to exceed)

☐ 12 Month☐ 24 Month☐ 36 Month☐ 48 Month☐ 60 Month☒ Thru 30 month

0.0157

Fixed Energy Rate (per kWh)

Trigger Rate (per kWh)

Capacity passed through

Liberty Plan ☐

Expected Index Start:

Index Price (per kWh)

Expected Fixed Start:

Fixed Price (per kWh)

☐ Fixed Adder:

ISO-NE + Adder = Index

☒ Administrative Costs:

All Other Ancillary Costs Passed Through

Liberty Pool End Date:

Independence Plan ☐

## Summary of Index Plans:

Term (not to exceed)

☐ 12 Month☐ 24 Month☐ 36 Month☐ 48 Month☐ 60 Month

Fixed Adder (per kWh)

Please Note: ISO-NE + Adder = Independence Pl.

Administrative Costs (per kWh)

All Other Ancillary Costs Passed Through

☐ Light☐ OtherPatriot Plan ☐

## Term &amp; Admin Adder:

## Structured Energy

☐ Standard Pool MTM: \$ \_\_\_\_\_ kWh☐ December 2012 Pool: \$ \_\_\_\_\_ kWh☐ December 2013 Pool: \$ \_\_\_\_\_ kWh☐ December 2014 Pool: \$ \_\_\_\_\_ kWh

Energy volume &amp; retail adder are the calendar month's total on the first

Account Number

Meter Number

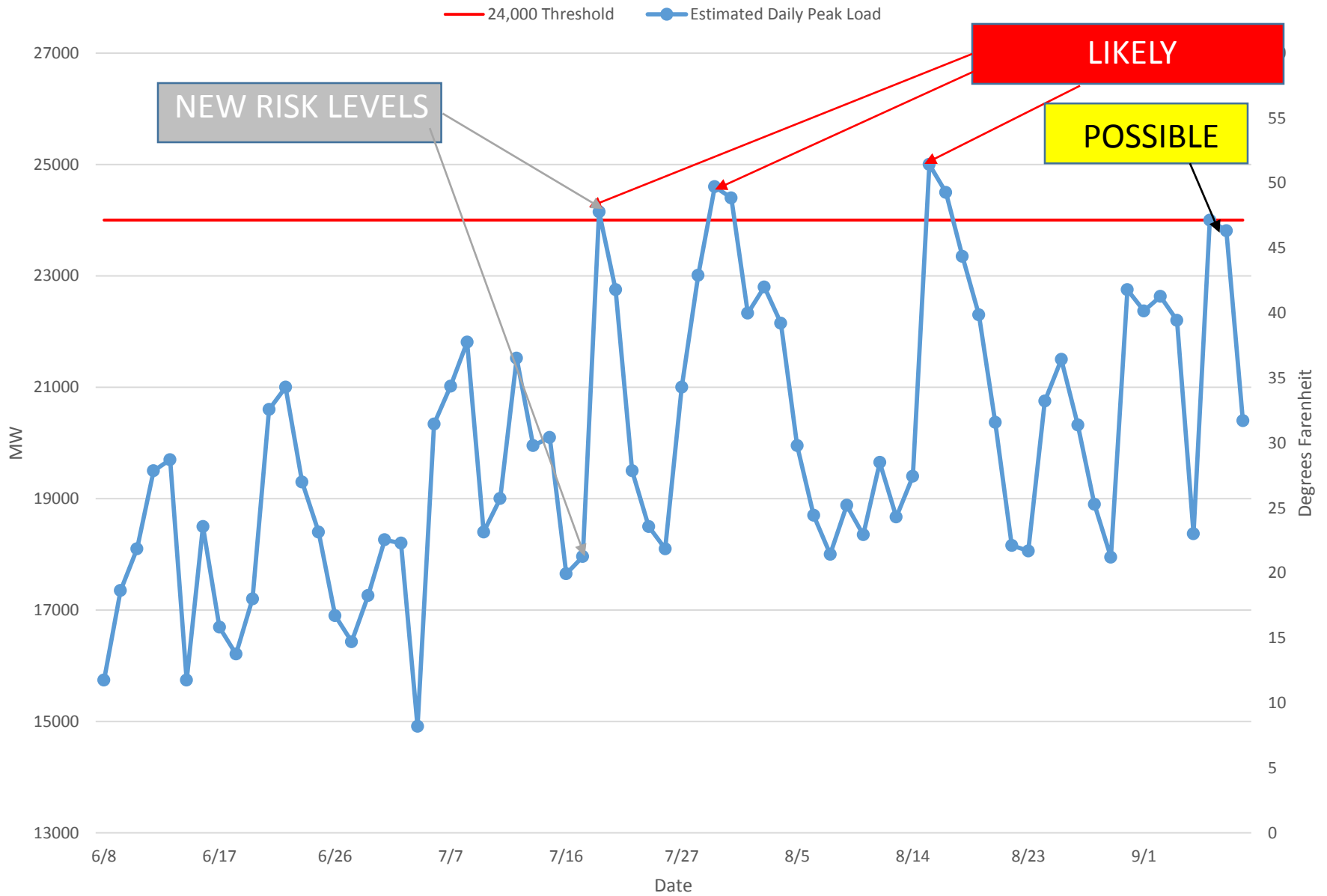
Account Number

Meter Number

# Past Results & Looking Forward



# ESTIMATED Summer 2015 Daily Peak Loads



# Success Stories

Lynn					
	Cap Tag**	Reduction	\$/tag	Cost	Avoided Cost
3 yr. avg.	1394.58		\$6.66	\$111,455	
2016-17	663.04	52%	\$6.66	\$52,990	\$58,465

**\*Lynn Classical High School saw a 74% reduction in demand**

**\*\*Cap Tag is extrapolated from demand data, not actual**

# Success Stories

Lynn					
	Cap Tag**	Reduction	\$/tag	Cost	Avoided Cost
3 yr. avg.	1394.58		\$6.66	\$111,455	
2016-17	663.04	52%	\$6.66	\$52,990	\$58,465
2017-18 (BAU)	1394.58		\$15.00	\$251,025	
2017-18 (LS)	663.04		\$15.00	\$119,347	\$131,677

**\*Lynn Classical High School saw a 74% reduction in demand**

**\*\*Cap Tag is extrapolated from demand data, not actual**



# Lynn Schools Load Shedding 2015

- **Choose a Champion**

- Assign Someone to own program

- **Educate Stakeholders early and often of intent**

- Principals
- School administrators
- Mayor

- **Actions**

- 1.HVAC
- 2.Lights
- 3.Anything that is not life safety

- **How Early did we start**

- July 20<sup>th</sup> first event
- Began shed at 2pm- due to shift ending at 3PM

- **Theory vs Practice**

- No exception

- **Feedback**

- Face to Face
- Opportunity cost for money saved

- **Changes**

- Become more educated in program
- Look for any other opportunities for saving

# 2016 Peak Demand Load Electric Shedding City of Quincy, MA

Shelly Dein  
Energy & Sustainability Director

[sdein@quincyma.gov](mailto:sdein@quincyma.gov)

617-376-1542

MAPC Webinar  
May 31, 2017



# Background

- Quincy has 300+ electricity accounts
- NGrid, SEMA territory. ICAP went from \$3.15 in 2016/2017 to \$7.03 in 2017/2018
- Focused exclusively on G-3 (Time-of-Use) accounts
  - 4 schools, some have Summer programs
  - no Administrative buildings are G-3 metered
- Needed to involve School Department personnel



# Communication is key

- Prior to program start, sent emails to all affected parties
  - Superintendent, Business Manager, 4 Principals, Coordinator of Custodial Services, Director of Plant Maintenance, Public Buildings Commissioner, Energy Technician
  - Met with Head Custodians of 4 schools
- Explained purpose (saving money and environmental)
- Explained scope – likely very hot, humid days, and likely after 3 PM.
- Shared MAPC “Weekly Risk” table
- Explained that we didn’t intend to cancel activities, but instead reset a/c controls and turn off lights, etc.



# Day of first event

- Got list of “Special Events” scheduled at each school (ie: gym in use until 9 PM)
- Subsequently got access to “School Dude” program
- Called each Head Custodian to review plan
- Sent emails to Principals to remind them, and to see if anyone expected this to be inconvenient
  - Indicated known planned activities (gym is open until 9 PM)
  - Pleasantly surprised at level of cooperation
- During event, went to each property to observe if any obvious areas for improvement – mostly noticed lighting.
- After event, talked to custodians to get their feedback/suggestions.
- Sent joint letters to all, thanking them for their cooperation

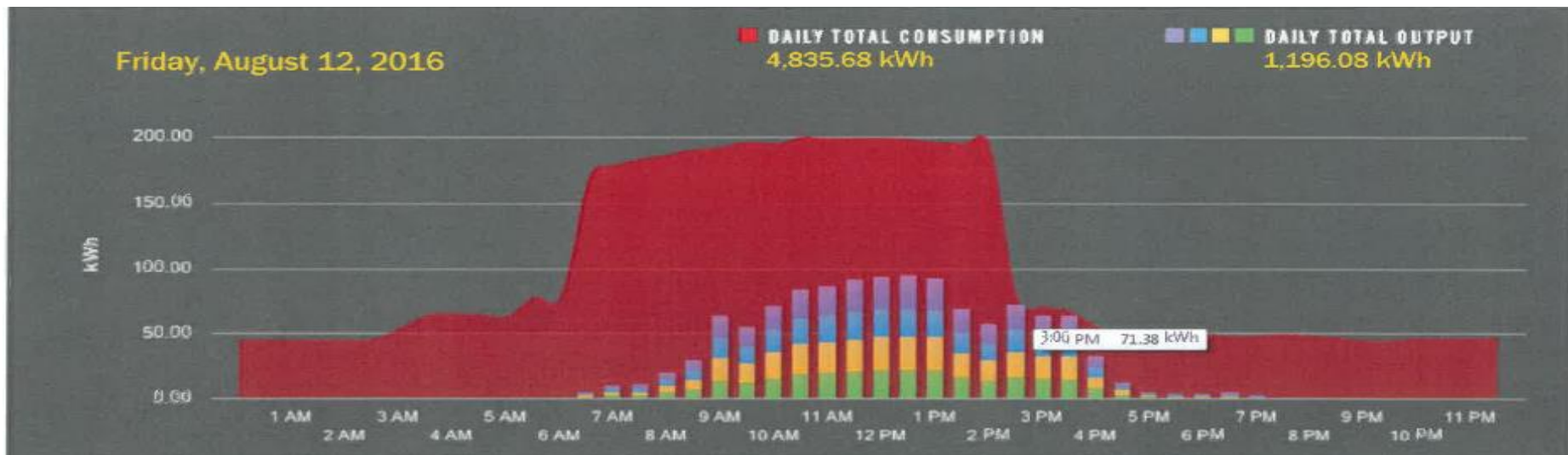
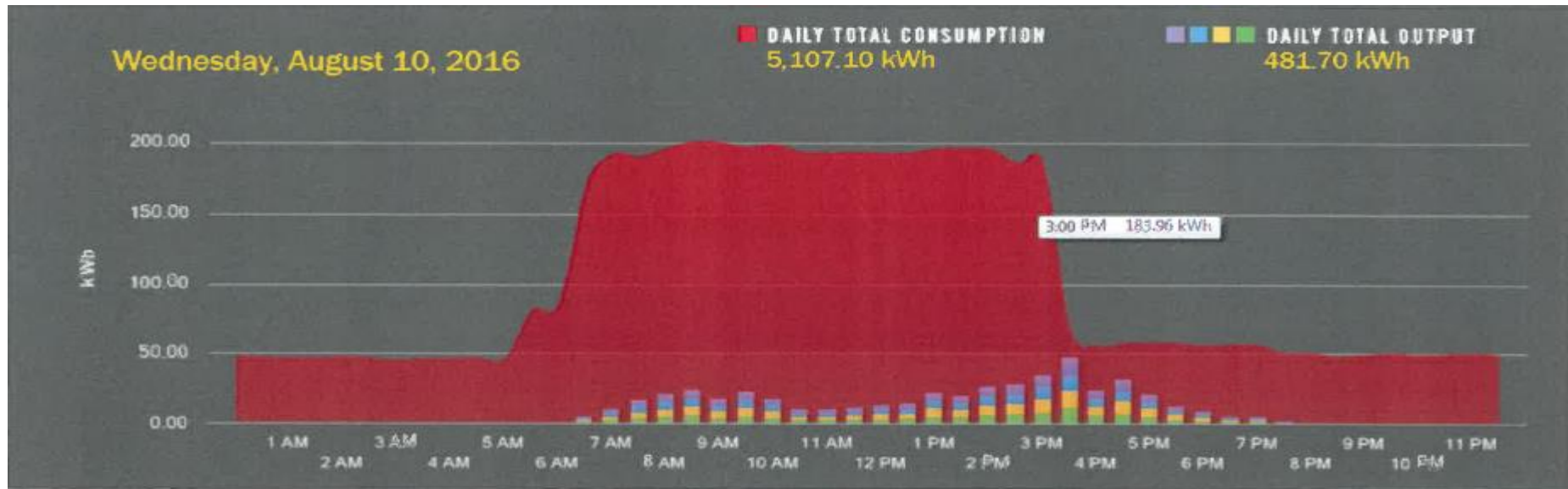


# Results

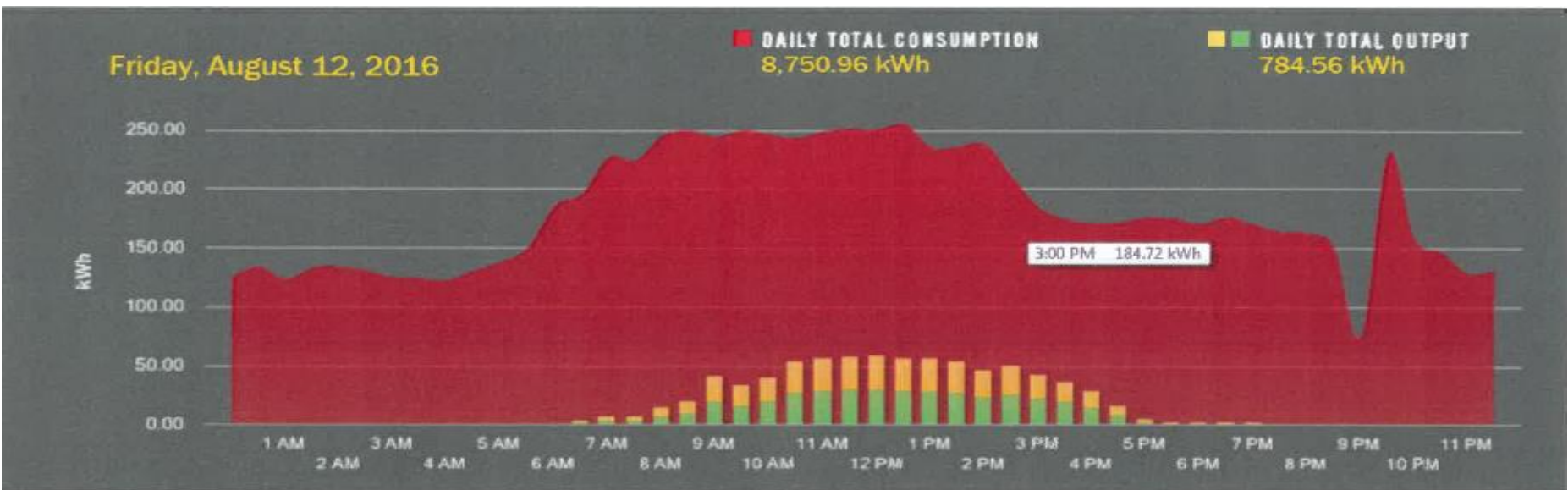
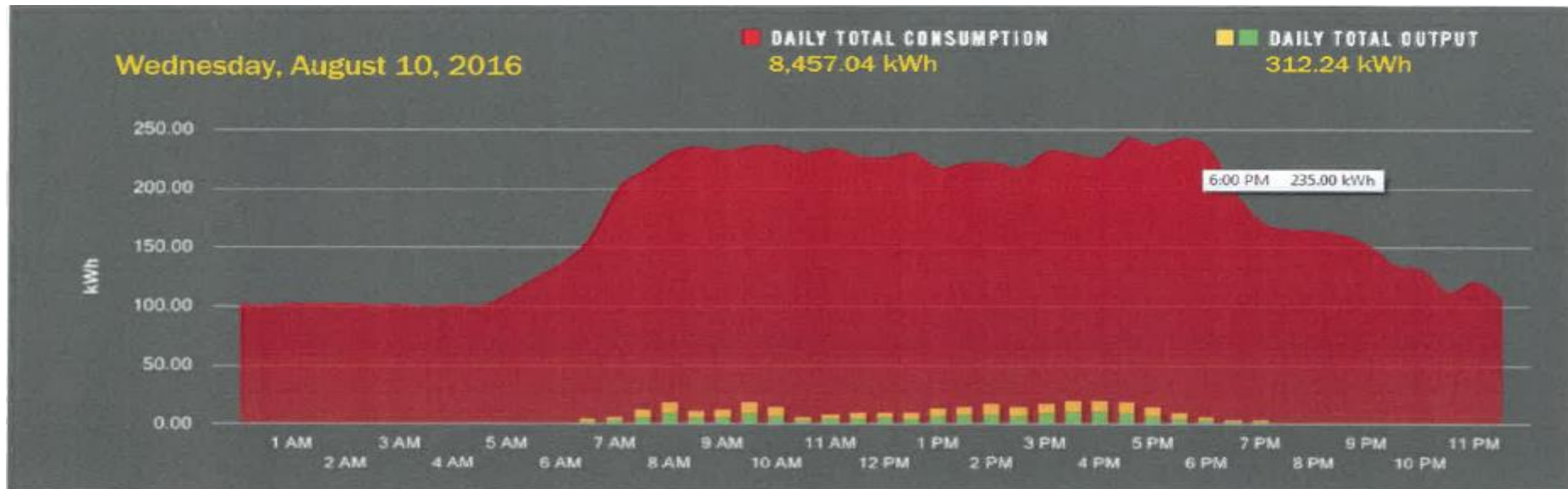
- Overall, Quincy went from 2,904 ICAP Tag 2016/2017 to 2,118 for 2017/2018 ; ~ (786) KW reduction
  - 27% reduction
  - $785 \times \$9.41 \times 12 \text{ months} = \sim \$88,600$  in avoided costs
- These 4 properties went from 1,044 ICAP Tag to 436; ~ (608) KW reduction
  - 58% reduction
- Surprising finding: Buildings with PV had very pronounced drop in ICAP Tag
  - 13 buildings with PV went from 1,489 to 600; (889) KW reduction
    - 60% reduction
- Savings a result of load shedding and PV; even though 71% cloudy



# NQHS – nonpeak and peak demand day



# Quincy HS – nonpeak and peak demand day





# Questions and Discussion



# Success Stories

Melrose					
	Cap Tag	Reduction	\$/tag	Cost	AVOIDED COST
7 yr. avg.	548.23		\$6.66	\$43,814	
2016-17	270.00	50%	\$6.66	\$21,579	\$22,236

**\*Melrose High School Saw a 53% reduction in demand across two accounts**

# Success Stories

Melrose					
	Cap Tag	Reduction	\$/tag	Cost	AVOIDED COST
7 yr. avg.	548.23		\$6.66	\$43,814	
2016-17	270.00	50%	\$6.66	\$21,579	\$22,236
2017-18 (BAU)	548.23		\$15.00	\$98,681	
2017-18 (LS)	270.00		\$15.00	\$48,600	\$50,081

**\*Melrose High School Saw a 53% reduction in demand across two accounts**

# Success Stories

Acton-Boxborough					
	Cap Tag*	Reduction	\$/tag	Cost	Avoided Cost
2 yr. avg.	972.5		\$6.66	\$77,722	
2016-17	220.94	77%	\$6.66	\$17,657	\$60,064

\*Cap Tag is extrapolated from demand data, not actual

# Success Stories

Acton-Boxborough					
	Cap Tag*	Reduction	\$/tag	Cost	Avoided Cost
2 yr. avg.	972.5		\$6.66	\$77,722	
2016-17	220.94	77%	\$6.66	\$17,657	\$60,064
2017-18 (BAU)	972.5		\$15.00	\$175,050	
2018-18 (LS)	220.94		\$15.00	\$39,769	\$135,280

\*Cap Tag is extrapolated from demand data, not actual